

CLAIMS

What is claimed is:

1. A cavity-down ball grid array package comprising:
 - a flexible circuit tape including a flexible tape laminated to a conductor layer, the flexible circuit tape having an aperture therein;
 - a thermally conductive heat spreader fixed to a first surface of the flexible circuit tape, the heat spreader having a cavity aligned with the aperture of the flexible circuit tape;
 - a semiconductor die mounted to the heat spreader, in a die-down configuration in said cavity;
 - a thermally conductive die adapter fixed to said semiconductor die such that a portion of said die adapter protrudes from said cavity;
 - a plurality of wire bonds connecting said semiconductor die to bond sites on said second surface of said flexible circuit tape;
 - an encapsulating material encapsulating said semiconductor die and said wire bonds;
 - and
 - a plurality of solder balls disposed on a second surface of the flexible circuit tape, in the form of a ball grid array.
2. The cavity-down ball grid array package according to claim 1, wherein said thermally conductive die adapter comprises a plurality of thermally conductive die adapter portions stacked on said semiconductor die.
3. The cavity-down ball grid array package according to claim 1, wherein said die adapter comprises a plurality of thermally conductive die adapter portions fixed side-by-side on said semiconductor die.
4. The cavity-down ball grid array package according to claim 1, further comprising wire bonds connecting said semiconductor die to said die adapter.
5. The cavity-down ball grid array package according to claim 1, further comprising wire bonds connecting said semiconductor die to said heat spreader.
6. The cavity-down ball grid array package according to claim 1, further comprising wire

bonds connecting said heat spreader to said die adapter.

7. The cavity-down ball grid array package according to claim 1, further comprising wire bonds connecting said flexible circuit tape to said die adapter.

8. The cavity-down ball grid array package according to claim 1, wherein said die adapter protrudes from said encapsulating material such that at least a surface of said die adapter is exposed.

9. The cavity-down ball grid array package according to claim 2, wherein one portion of said die adapter is a solid ground.

10. The cavity-down ball grid array package according to claim 2, wherein one portion of said die adapter is a solid power.

11. The cavity-down ball grid array package according to claim 1, wherein the die adapter is comprised of one of silicon and silicon coated with a solderable layer.

12. The cavity-down ball grid array package according to claim 11, wherein the solderable layer is selected from the group consisting of Cr, Ni and Au.

13. The cavity-down ball grid array package according to claim 1, wherein the die adapter is comprised of one of NiFe and A42.

14. The cavity-down ball grid array package according to claim 1, wherein the die adapter is comprised of one of copper and alumina.